

PATENT ABSTRACTS OF JAPAN

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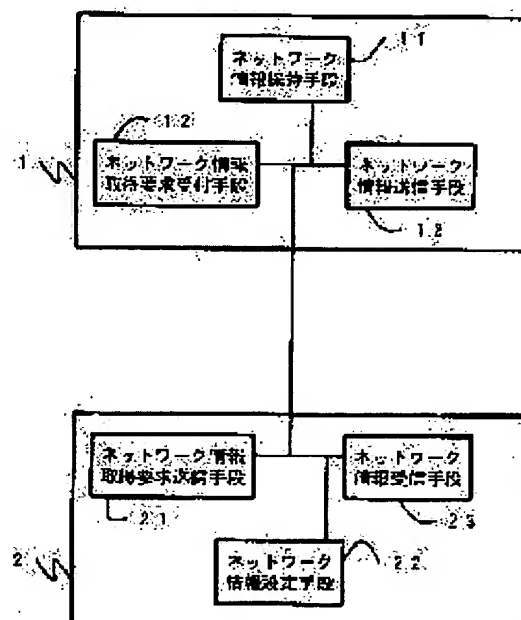
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(54) NETWORK TERMINAL DEVICE AND NETWORK SYSTEM

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a network terminal device and a network system with which a user can set network information even without going to a place where the network terminal device is located when the user newly sets and resets the network information of the network terminal device.

SOLUTION: When a network information acquisition requesting means 21 transmits an acquisition request for the network information, a network information acquisition request receiving means 12 receives the acquisition request and a network information transmitting means 13 transmits network information held by a network information holding means 11. A network information receiving means 23 receives the network information transmitted by the means 13, a network information setting means 22 sets the network information in the network terminal device 2 and the processing is finished in this way.



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CLAIMS

[Claim(s)]

[Claim 1] From other network terminal units which are network terminal units connected to the network, and were connected to said network An address acquisition demand reception means to receive the acquisition demand of the address in said network of these other network terminal units, A network information maintenance means to hold said network information which a network terminal unit besides the above uses, The network terminal unit characterized by having a network information transmitting means to transmit one of the network information which this network information maintenance means holds to the terminal unit connected to said network according to said network information acquisition demand.

[Claim 2] The network terminal unit characterized by to have an address acquisition demand transmitting means are the network terminal unit connected to a network, and transmit the acquisition demand of the address in said self network to other network terminal units connected to said network, a network information receiving means receive said network information transmitted based on an acquisition demand of said network information, and a network information setting means set said network information which this received as said network terminal unit.

[Claim 3] The network system characterized by consisting of network terminal units and network terminal units according to claim 2 according to claim 1.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] About the network terminal unit connected to a network, especially, this invention has a network address and relates to the network terminal unit which can communicate on a network.

[0002]

[Description of the Prior Art] Recent years especially a business-use printer is connected to a network, data are received from two or more sets of host computers, it is possible to print and such a use gestalt is becoming a criterion. Furthermore, low-pricing, miniaturization, improvement in the speed, and colorization are also progressing.

[0003] Especially, in big clients, such as a big business or government and municipal offices, the printer is used more often with a use gestalt which was described above, the derangement after purchase is avoided or the same manufacturer's thing is purchased more often by the package in consideration of the ease of doing of a maintenance etc.

[0004]

[Problem(s) to be Solved by the Invention] However, since a setup about information required since a printer is used in networks, such as a network address, was not carried out even if it purchased the same manufacturer's printer, those information had to be set up about each of the purchased printer.

[0005] In this case, although it will be said whether set up the setting approach from the control panel of a printer or set up using the setting utility of each manufacturer attachment Even if serious time and effort and time amount will be taken and it requested the purchase manufacturer for the user if the user performed the setup when the number of purchase became dozens of sets since both would set up every set, there was a trouble that costs will increase.

[0006] Moreover, the technique about the print control unit indicated to be this invention by JP,11-203086,A as a similar conventional technique in respect of automatic setting is mentioned. The identification information which corresponds from the host computer connected to a network is acquired, and this technique chooses automatically the printing environment beforehand registered into the print control unit, and sets it up.

[0007] However, the above-mentioned conventional technique is related with a setup of the printing conditions of the very thing of the printer already connected to the network etc., and it is not related with setting up network information, such as the address of the printer on a network.

[0008] This invention aims at offering the network terminal unit and network system which can set it up even if the network information on the network terminal unit newly connected to the network about all the network terminal units that were made in view of the above-mentioned trouble, and were connected not only to a printer but to the network, or the network terminal unit which needs resetting of network information is in the location distant from the network terminal unit.

[0009]

[Means for Solving the Problem] In order to attain this purpose, invention according to claim 1 From other network terminal units which are network terminal units connected to the network, and were connected to the network An address acquisition demand reception means to receive the acquisition demand of the address in the network of other network terminal units, A network information maintenance means to hold the network information which other network terminal units use, It is characterized by having a network information transmitting means to transmit one of the network information which a network information maintenance means

holds to the terminal unit connected to the network according to a network information acquisition demand.

[0010] It carries out that invention according to claim 2 has an address acquisition demand transmitting means are the network terminal unit connected to the network, and transmit the acquisition demand of the address in a self network to other network terminal units connected to the network, a network information receiving means receive the network information transmitted based on the acquisition demand of network information, and a network information setting means set the network information which received as a network terminal unit as the description.

[0011] Invention according to claim 3 is characterized by consisting of network terminal units and network terminal units according to claim 2 according to claim 1.

[0012]

[Embodiment of the Invention] The operation gestalt of the network terminal unit and network system which are hereafter applied to this invention which referred to the accompanying drawing is explained to a detail. The operation gestalt of the network terminal unit and network system concerning this invention is shown in drawing 12 from drawing 1.

[0013] In addition, although this invention relates to a network terminal unit, as for the operation gestalt, the network printer is applied as an example. In addition, the protocol used in this operation gestalt is a TCP/IP protocol.

[0014] In this operation gestalt, when calling it a network address, the so-called IP address used by the Internet is meant. In this operation gestalt, in meaning the printer connected to the network in calling it a network printer, and calling it network information, it says information required in order that the network printer may operate in a network. That is, a network address, the subnet mask address, and the Gateway address are meant.

[0015] Drawing 1 is drawing in which an example of the network terminal unit of this invention and the concept of the configuration of a network system is shown.

[0016] The example of 1 configuration of the network environment for which the network printer which is 1 operation gestalt of this invention is used is shown in drawing 2. The configuration is a network printer which was connected to one set of a master printer newly [others], or is demanding acquisition of resetting information. Although a master printer and a network printer are printers which have the same function, they function as a master printer by setting the motive mode as "master printer mode."

[0017] The case where the network printer connected newly acquires network information hereafter is explained. In this case, the set point of the printer connected newly is an initial state. The example is shown in drawing 7. Since this operation gestalt is a TCP/IP protocol, the subnet mask and default gateway other than an IP address are displayed on the item, and all the set points have become a default, i.e., the condition of initial value.

[0018] Furthermore, the example of a setting when being set to drawing 8 is shown. In order for a network printer to operate on a network, these setup is needed at least.

[0019] Next, a setup of a master printer is explained. This setup shall be performed from a panel. The example of the setting display displayed on a panel is shown in drawing 9. The display of a SHOKI settee is displayed and a system SHOKI settee is chosen.

[0020] If a system SHOKI settee is chosen, since the item of 1. KYUUSHI tray, 2. JUSHIN buffer, etc. will be displayed, the KIDOU mode of them is chosen. Since - Normal, a master printer, etc. will be displayed if it does so, if - master printer is chosen, the printer will come to achieve the function as a master printer. The KIDOU mode in which it has the function described above by the item of the system SHOKI settee in which the above-mentioned KIDOU mode display exists from the former is added.

[0021] If it becomes a master printer, it will enable the printer to achieve two functions of the following [a network top].

1) On a network, two or more usable network addresses are registered, or are held.

2) When there is [transmitting an usable network address from other network printers and] a demand, transmit the information.

[0022] The usable network address of 1) is the address which can be assigned to the network printer installed on a network after this, and a manager registers these addresses from a panel. In addition, the received data shall be printed, when there is no change in the usual actuation and there is a printing demand, even if it starts as a master printer.

[0023] The example of a display of the panel at the time of choosing the function to register is shown in drawing 10. When KIDOU mode starts with a "master printer", from a panel, the item of the "tow good address" can appear, and the usable network address of 1 can also be set up and registered.

[0024] The example into which the network address was registered is shown in drawing 3 (a). When there is a demand so that a network address may be transmitted from other printers on a network, this address usable in order of registration is transmitted. In addition, with this operation gestalt, although the approach of this registration has indicated only the case from a panel, it also has the approach of registering from the utility by the side of PC through a network.

[0025] The processing which assigns a network address hereafter to the printer newly installed based on the flow chart of drawing 4 is explained. Although this processing is performed between a master printer and the other network printer, the processing which a master printer performs is explained first.

[0026] In addition, since actuation of a master printer and other network printers interlocks, in drawing 4, the flow chart about actuation of these both sides is shown. In the following explanation, the list of network addresses shall already be registered into the master printer, and it will reboot as a master printer after registration.

[0027] Drawing 4 (a) explains actuation of a master printer. It is confirmed whether a master printer has a master printer effective otherwise on the network first (step S11). Since a master printer will not exist in others without a response (steps S12/No), the printer is started as a formal master printer in the network.

[0028] If there is a response (steps S12/Yes), since there will be a printer already started as a master printer, that printer will not be started as a master printer and this processing will be ended.

[0029] If there are waiting and a network acquisition demand about reception of a network acquisition demand (steps S13/Yes), the intact address is chosen from a registration list, and an appeal check will be performed in order to check whether the address is used truly (step S14). (It is the GING command performed with a TCP/IP protocol.)

[0030] On the other hand, this processing is continued until the address which is not used by performing same processing to the next intact address indicated by the registration list becomes clear, since that address will already be used by (steps S15/Yes) and other devices when there is a response from a network.

[0031] When the address which is not used for others becomes clear, it transmits to the printer which required the address (step S16). The status is changed into "used" about the address transmitted at this time, and in order to distinguish the printer of a requiring agency, that MAC Address is held.

[0032] When a master printer receives the acquisition demand of a network address by operating as the master printer was described above, Since it can transmit after checking that it is usable in an usable network address Even if two or more sets of printers are newly installed in the network and it does not go to the location where every set of the exists, a network address can be certainly set up now and a setup of a network address becomes very easy.

[0033] Next, the processing which network printers other than a master printer perform by drawing 4 (b) is explained. If it starts where a printer is newly connected to a network, and the printer is in an initial value condition (default condition) (steps S21/Yes), the acquisition demand of a network address will be transmitted to the terminal on the network connected by broadcasting (step S22). When the printer is not in an initial value condition (steps S21/No), the processing for network address acquisition is ended.

[0034] If a master printer exists on a network, according to the acquisition demand of the above [that printer], this network printer will receive the network address transmitted from there (steps S23/Yes). The received network address is set as a setting field as a network address of the printer (step S24), it reboots and processing is ended.

[0035] In addition, the network address of a master printer with a response is also held in the case of this setup. Moreover, when it reboots, since a setup of a network address is not initial value shortly, broadcasting transmission for acquiring a network address to a network is not performed.

[0036] Moreover, when a master printer does not exist on a network, the printer according to the aforementioned acquisition demand does not exist, but serves as a time-out of the waiting for a response (steps S23/No), and processing ends it at the time of starting.

[0037] If the master printer is connected when a printer is newly purchased when a network printer comes to operate as described above, and it connects with a network, it becomes unnecessary to set up a network address

specially, and a very user-friendly network printer can be offered.

[0038] In addition, although this operation gestalt is the example which described the network address (IP address as used in the field of TCP/IP), it becomes possible by setting other setting items, for example, subnet mask address, or Gateway addresses etc. as the registration list similarly to set the above-mentioned address as coincidence. The example of a registration list is shown in drawing 3 R> 3 (b).

[0039] The actuation which resets the set point to the network printer which operates hereafter under the network environment shown in drawing 2 is explained. First, a master printer is explained.

[0040] Although a master printer and a network printer are printers which have the same function, they function as a master printer by setting the motive mode as "master printer mode". [as well as the processing in the case of the processing which assigns a network address to the printer installed newly]

[0041] Although the setup is the same as that of the case of the processing which assigns a network address to the printer installed newly fundamentally, the item of the setting display displayed on a panel is different. The example of the setting display displayed on a panel is shown in drawing 11 . A SHOKI settee is displayed and a system SHOKI settee is chosen.

[0042] If a system SHOKI settee is chosen, since the item of 1. KYUUSHI tray, 2. JUSHIN buffer, etc. will be displayed, the KIDOU mode of them is chosen. Since - Normal, a master printer, etc. will be displayed if it does so, if - master printer is chosen, the printer will come to achieve the function as a master printer. The KIDOU mode in which it has the function described above by the item of the system SHOKI settee in which the above-mentioned KIDOU mode display exists from the former is added.

[0043] If it becomes a master printer, in this processing, it will enable the printer to achieve two functions of the following [a network top].

1) Two or more performance information of the network address which operates on a network is registered, or is held.

2) When there is an updating demand of the information on the network address by which a current setup is carried out from other network printers, transmit the information.

[0044] The performance information of 1) is things, such as a network address which can be assigned to the network printer installed on a network after this, and a manager registers these addresses from a panel. In addition, the received data shall be printed, when there is no change in the usual actuation and there is a printing demand, even if it starts as a master printer.

[0045] The network address registered from the first is changed, or the example of a display of the panel at the time of choosing the function to register a network address is shown in drawing 11 . When KIDOU mode starts with a "master printer", from a panel, the item of the "tow good address" can appear, and the usable network address of 1 can also be set up and registered.

[0046] The example into which a network address, a net mask, and Gateway were registered is shown in drawing 6 . When there is a demand so that performance information may be transmitted from other printers on a network, this address usable in order of registration is transmitted. In addition, with this operation gestalt, although the approach of this registration has indicated only the case from a panel, it also has the approach of registering from the utility by the side of PC through a network.

[0047] The processing which assigns a network address hereafter to the printer which needs resetting of a network address based on the flow chart of drawing 5 is explained. Although this processing is performed between a master printer and the other network printer, the processing which a master printer performs is explained first.

[0048] In addition, in drawing 5 , the flow chart about two actuation, a master printer and a network printer, is shown. Drawing 5 (a) is actuation of a master printer, and drawing 5 (b) is actuation of network printers other than a master printer. In the following explanation, the list of network addresses shall already be registered into the master printer.

[0049] The network address etc. shall be set to the master printer and information, such as a network address, a net mask, and a default gateway, and the information which memorized the corresponding MAC Address shall be held to it. The example is shown in drawing 6 .

[0050] If the item of "tow good HENKOU" is chosen, it will assign a network printer besides former and the MAC Addresses (000074abcdef etc.) of the network printer of ending will be displayed. The MAC Address of the target printer is chosen and an IP address, the Gateway address, etc. are changed.

[0051] A master printer is started as a master printer, if it confirms whether there are other effective master printers (step S31) and a master printer otherwise does not exist on the network probably after starting (steps S32/No). When a master printer exists in others, (steps S32/Yes) and processing are ended.

[0052] A master printer confirms whether choose the resetting information from the already registered list, and the address is used, when an acquisition demand of network information is received from other network printers (steps S33/Yes) (step S34).

[0053] If the address is not used (steps S35/Yes), the printer which required the resetting information will be answered (step S36), and it will wait for an acquisition demand of resetting information.

[0054] Moreover, when not receiving an acquisition demand of network information from other network printers (steps S33/No), it will wait for the acquisition demand.

[0055] Since it becomes possible to transmit resetting information simply when resetting of the performance information of two or more sets of the printers which operate on a network when a master printer operates is needed, as described above, even if it does not go to the location where every set of the exists, a network address can be certainly set up now and a setup of a network address becomes very easy.

[0056] Next, the processing which the network printer which needs resetting of those other than a master printer performs is explained. A printer to reset setting information is started in "resetting mode." When resetting mode chooses and performs from a panel the selections "resetting", a printer is started in resetting mode. The example of the panel display is shown in drawing 12.

[0057] The item of 1. KYUUSHI tray, 2. JUSHIN buffer, etc. will be displayed, and selection in resetting mode will choose 43. KIDOU mode of them, if a system SHOKI settee is chosen in drawing 12. If KIDOU mode is chosen, items, such as - Normal, a master printer, and SAISSETTEI, will be displayed, and it will start as resetting mode by choosing - SAISSETTEI.

[0058] When it starts in resetting mode, processing which acquires resetting information from a master printer before the usual starting processing is performed. Hereafter, the processing which acquires resetting information from a master printer by drawing 5 (b) is explained.

[0059] It judges whether it is in resetting mode (step S41). If it is in resetting mode (steps S41/Yes), broadcasting transmission of the acquisition demand of resetting information will be carried out in the network (step S42). If reception of resetting information is before becoming a time-out (steps S43/Yes), the received resetting information will be set as a setting field (step S44), and it will reboot.

[0060] Since it is not in "resetting mode" shortly in the case of a reboot, broadcasting transmission of network information which carries out an acquisition demand is not performed to a network.

[0061] If it is not in resetting mode in step S41 (steps S41/No), the demand of acquisition of resetting information will not be performed but processing will be ended. Moreover, in step S43, when there is no reception of resetting information (steps S43/No), it becomes a time-out, and acquisition of resetting information cannot be performed, but processing is ended.

[0062] Since the information which the network printer which needs resetting when the network printer which needs resetting of setting information operates resets will be set up even if it is not set up one by one with the network printer as described above, the setup becomes very easy.

[0063] Although the approach of setting up from a panel is shown as the setting approaches, such as a master printer, by especially this operation gestalt, it is also possible to set up via a network using a utility from PC etc.

[0064] Moreover, although the item to set up is extracted to the network address of TCP/IP and explained, it is possible to set up similarly about other protocol and other setting items.

[0065]

[Effect of the Invention] Since network information is transmitted according to the demand according to invention according to claim 1 when an acquisition demand of network information suits a network terminal unit so that clearly from the above explanation When [when a terminal is newly connected to the network] there is a terminal which has already been connected and needs resetting, Even if it does not go to the location where the terminal exists, the network information on the terminal can be set up now, and a setup of network information becomes very easy.

[0066] If an acquisition demand of network information is advanced, since network information will be acquired and set up according to invention according to claim 2, it becomes unnecessary for a user to set up

network information specially, and a setup of network information becomes very easy.

[0067] If a network terminal unit according to claim 2 advances an acquisition demand of network information according to invention according to claim 3 A network terminal unit according to claim 1 transmits according to the acquisition demand, and a network terminal unit according to claim 2 acquires, and since it sets up To the location where a network terminal unit according to claim 2 exists, even if it does not go specially, it becomes possible to set up the network information on the network terminal unit, and it serves as a very user-friendly network system as a user.

[Translation done.]

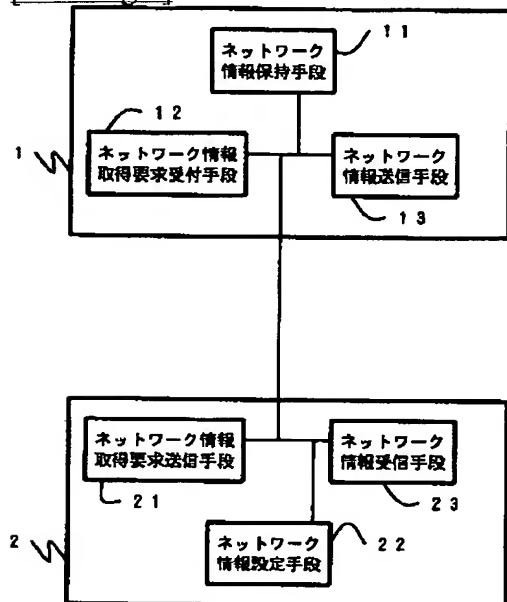
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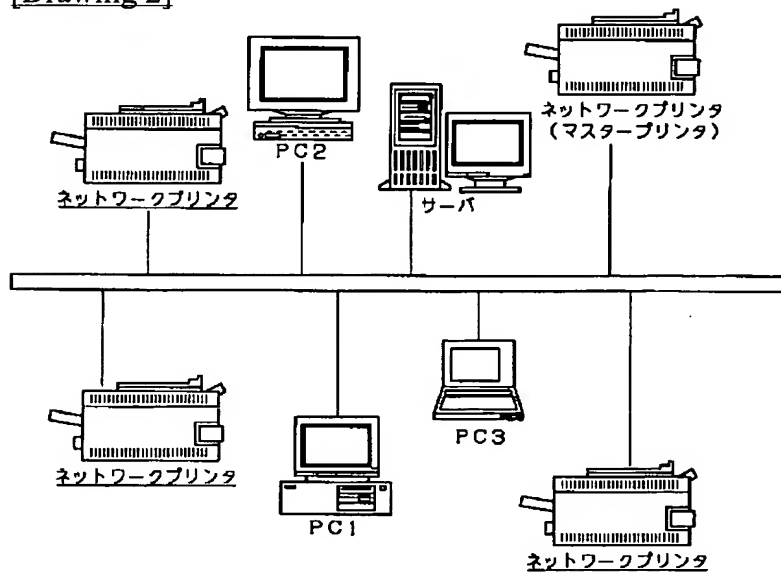
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DRAWINGS

[Drawing 1]



[Drawing 2]



[Drawing 3]

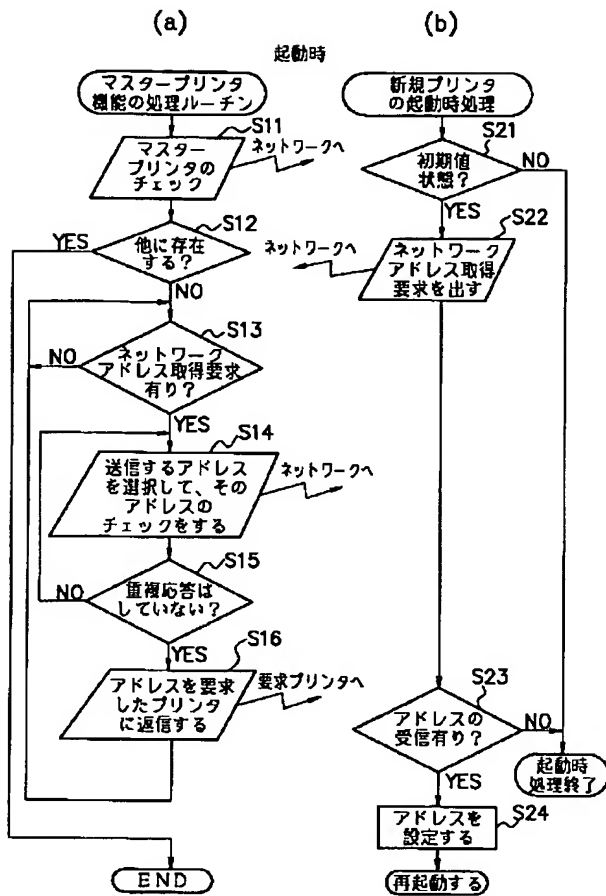
(a)

<ネットIPアドレス(15桁)>	<ポート番号(1桁)>	<MACアドレス>
133.139.49.70	1	000074abcdef
133.139.49.72	1	000074123456
133.139.49.73	0	
133.139.49.79	0	
133.139.49.80	0	

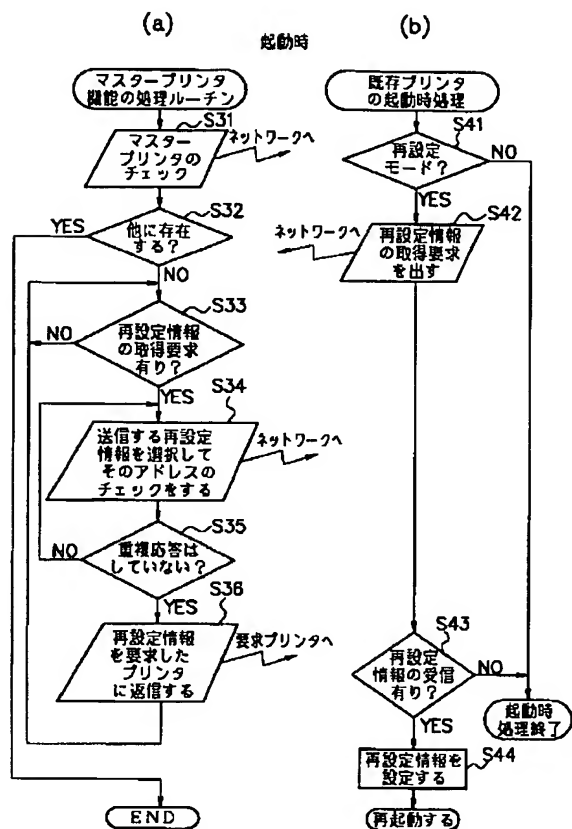
(b)

<ネットIPアドレス>	<ネットマスク>	<デフォルトゲートウェイ>	<ポート番号>	<MACアドレス>
133.139.49.71	255.255.0.0	133.139.49.1	1	000074abcdef
133.139.49.72	255.255.0.0	133.139.49.1	1	000074abcdef
133.139.49.73	255.255.0.0	133.139.49.1	0	
133.139.49.74	255.255.0.0	133.139.49.1	0	
133.139.49.75	255.255.0.0	133.139.49.1	0	

[Drawing 4]



[Drawing 5]



[Drawing 6]

<ネットワークアドレス>	<ネットマスク>	<ゲートウェイ>	<IPアドレス>	<MACアドレス>
133.139.172.101	255.255.0.0	133.139.172.1	1	000074abcdef
133.139.172.102	255.255.0.0	133.139.172.1	1	000074abcdef
133.139.49.73	255.255.0.0	133.139.49.1	0	
133.139.49.74	255.255.0.0	133.139.49.1	0	
133.139.49.75	255.255.0.0	133.139.49.1	0	

[Drawing 7]

TCP/IPプロトコルの例

<項目>	<設定値(デフォルト)>
IPアドレス	11. 22. 33. 44
サブネットマスク	0. 0. 0. 0
デフォルトゲートウェイアドレス	0. 0. 0. 0

[Drawing 8]

TCP/IPプロトコルの例

<項目>	<設定値>
IPアドレス	113. 139. 49. 70 (最低限設定が必要)
サブネットマスク	225. 225. 0. 0
デフォルトゲートウェイアドレス	133. 139. 49. 1

[Drawing 9]

<ショキセツテイ>

- ・システムショキセツテイ → 1. キュウシトレイ
- ・テストインサツ 2. ジュシンバッファ
- ・メンテナンス 3. -----
- 4. -----

40. キドウモード → ・ノーマル
・マスタープリンタ

[Drawing 10]

<ショキセツテイ>

- ・システムショキセツテイ → 1. キュウシトレイ
- ・テストインサツ 2. ジュシンバッファ
- ・メンテナンス 3. -----
- 4. -----

40. キドウモード → ・ノーマル
・マスタープリンタ
41. トウロクアドレス → (ネットワークアドレスの入力)

[Drawing 11]

<ショキセツテイ>

- ・システムショキセツテイ → 1. キュウシトレイ
- ・テストインサツ 2. ジュシンバッファ
- ・メンテナンス 3. -----
- 4. -----

40. キドウモード → ・ノーマル
・マスタープリンタ
41. トウロクアドレス → (ネットワークアドレスの入力)
42. トウロクヘンコウ → (各種アドレスの変更)

[Drawing 12]

<ショキセツテイ>

- ・システムショキセツテイ → 1. キュウシトレイ
- ・テストインサツ 2. ジュシンバッファ
- ・メンテナンス 3. -----
- 4. -----

43. キドウモード → ・ノーマル
・マスタープリンタ
・サイセツテイ

[Translation done.]